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DISRUPTER SERIES: SELF-DRIVING CARS

TUESDAY, NOVEMBER 15, 2016

House of Representatives,
Subcommittee on Commerce, Manufacturing,
and Trade,
Committee on Energy and Commerce
Washington, D.C.

The Subcommittee met, pursuant to call, at 10:30 a.m., in Room 2122 Rayburn House Office Building, Hon. Michael Burgess [chairman of the subcommittee] presiding.

Members present: Representatives Burgess, Lance, Blackburn, Guthrie, Kinzinger, Bilirakis, Brooks, Mullin, Schakowsky, Kennedy, Cardenas, and Pallone (ex officio).

Staff present: Elena Brennan, Staff Assistant; Karen Christian, General Counsel; James Decker, Policy Coordinator, Commerce, Manufacturing, and Trade; Blair Ellis, Digital

Coordinator/Press Secretary; Melissa Froelich, Counsel, Commerce, Manufacturing, and Trade; Giulia Giannangeli, Legislative Clerk, Commerce, Manufacturing, and Trade; A.T. Johnston, Senior Policy Advisor; Paul Nagle, Chief Counsel, Commerce, Manufacturing, and Trade; Dan Schneider, Press Secretary; Olivia Trusty, Professional Staff, Commerce, Manufacturing, and Trade; Michelle Ash, Minority Chief Counsel, Commerce, Manufacturing, and Trade; Jeff Carroll, Minority Staff Director; David Goldman, Minority Chief Counsel, Communications and Technology; Rick Kessler, Minority Senior Advisor and Staff Director, Energy and Environment; Caroline Paris-Behr, Minority Policy Analyst; Matt Schumacher, Minority Press Assistant; and Andrew Souvall, Minority Director of Communications, Outreach and Member Services

Mr. Burgess. The Subcommittee on Commerce, Manufacturing, and Trade will now come to order. The chair recognizes himself for 5 minutes for an opening statement.

Good morning, all, and welcome to today's Disrupter Series hearing on self-driving cars, a groundbreaking technological development that has the potential to completely transform and redefine the vehicle and transportation system that we know and understand today.

Because this may be the last time that we have the privilege of having Dr. Rosekind before our subcommittee, let me first thank him for his service. He has always cooperated with this committee and we have continued to improve the agency, the recall process and, although it has been a big task, I believe improve safety. Thank you, Dr. Rosekind, for your service.

Self-driving cars promise to be the most significant automobile-related safety development in our lifetimes. This hearing will kick off what I expected to be a major focus of this subcommittee really for years to come and the reason is simple. Last year, automobile-related fatalities were around 35,000 and rose for the first time in nearly a decade. My home State of Texas was about ten percent of that, 3,516. The vast majority of those fatalities are still related to human behavior. Already, we have heard that fatalities are up again for the first half of this year. Truly self-driving cars are not about to be deployed in any great

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numbers anytime soon but the sooner we can safely get them to market, the sooner we can start saving lives. I, for one, am not among those who are worried that the adoption of this new technology will outpace safety. It will not be broadly adopted before it is ready. Our job is to be really smart and identify a path forward where the government can provide a cop on the beat for the industry and respond quickly where safety incidents arise. But we cannot let the government paralyze the very innovation that promises to make us safer.

I think National Highway Traffic Safety Administration's recent guidance is well-meaning. We obviously worry greatly about its implementation. Waiting for the government to approve technology is never a good formula. That said, we must remain vigilant in areas like cybersecurity where industry must be held accountable if they are not taking reasonable measures.

In addition to safety, self-driving cars promise a reduction in fuel emissions and energy consumption as a result of improved mobility and more efficient traffic flows. Self-driving vehicles may also allow for more efficient land use instead of wasting resources on parking in city lots. We can also expect to see an increase in transport and mobility opportunities such as ride-hailing and rise-sharing services; opportunities for labor cost savings; improved transportation access for disabled, elderly, and underserved populations; and other enhancements that

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improve the societal and economic welfare of communities across the country. This is what makes the development and deployment of autonomous cars so exciting: their impact will be virtually limitless.

As Dean Kamen reminded all of us at our last Disrupter Series hearing, we cannot afford to let the perfect be the enemy of the good. That means allowing innovators to innovate, allow them to develop the technology and give them the flexibility to test its potential. Preemptive action on the part of regulators before gaining a full understanding or appreciation of self-driving cars may lead to unintended consequences that limit the capabilities of this emerging technology and its promised life-saving, economic, and societal benefits.

I want to thank our witnesses for taking the time to inform us about this technology and I look forward to a thoughtful and engaging discussion.

[The opening statement by Mr. Burgess follows:]

*****COMMITTEE INSERT 1*****

Mr. Burgess. Let me yield back my time and recognize the vice chairwoman of the full committee for 5 minutes for an opening statement.

Mrs. Blackburn. Thank you, Mr. Chairman. And Dr. Rosekind, I want to say thank you to you. I join the chairman in thanking you for your service and for taking the time to be here.

The issue that we are looking at today and as a part of our Disrupter Series is something that is really important to my constituents in Tennessee because you have the General Motors Spring Hill Plant that is in my district. They are doing much of the green tech innovation. You also have the Nissan North America that is located in my district and then on the outskirts of our district, we have the Toyota Bodine Engine plant.

Now, as I talked to the innovators and the engineers that are working on these next generation concepts, they repeatedly remind me that automobiles are now driving computers and that we need to recognize that and be mindful of it.

And as we look at the internet of things, of course it is well-placed but as we view this, we also view the necessity for safety and the technology that will make cars safer or help to make them safer will bring forward some of the driverless components, have those interface with the marketplace. Those are issues that are going to be important to us. Reducing fatalities

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on the road is something that we are very interested in. And when you hear that the self-driving or driverless-directed components can reduce, has the potential to reduce fatalities by 90 percent, that is something, as a mother and a grandmother, that really interests me because we all want to have those opportunities to make vehicles safer.

So, I thank you for the time, Mr. Chairman. I thank you for going ahead and moving forward with this hearing and I yield back the balance of my time.

[The information follows:]

*****COMMITTEE INSERT 2*****

Mr. Burgess. The chair thanks the gentlelady. Does anyone else on the Republican side seek time for an opening statement? Seeing none, we are going to depart from regular order. Dr. Rosekind, just I will ask you to go ahead with your opening statement. I will not interrupt you when members of the Democratic side arrive. They will then be recognized for opening statements but my intention is to allow you to deliver your entire remarks before we do that.

We do want to thank all of our witnesses for being here today and taking the time to testify before the subcommittee. Today's hearing will consist of two panels. Each panel of witnesses will have an opportunity to give an opening statement, followed by a round of questions by members. Once we conclude with questions of the first panel, we will take a brief recess to set up for the second panel.

Our first panel for today's hearing is Dr. Mark Rosekind, the Administrator at the National Highway Traffic Safety Administration. We appreciate you being here today. We will begin the panel with Dr. Rosekind and you are now recognized for 5 minutes for your opening statement.

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STATEMENT OF MARK ROSEKIND, PH.D., ADMINISTRATOR, U.S. DEPARTMENT
OF TRANSPORTATION, NATIONAL HIGHWAY TRAFFIC SAFETY
ADMINISTRATION

Mr. Rosekind. Chairman Burgess, Ranking Member Schakowsky, members of the committee, thank you for holding this meeting and for inviting me to testify.

At NHTSA, our mission is to save lives on America's roadways and for 50 years, we have carried out that mission by writing and enforcing regulations to make vehicles safer, fighting against drunk driving, building a national consensus about seatbelt use, and so many other efforts that have saved hundreds of thousands of Americans on our roadways but we have far more work to do and that work can be measured by some very alarming numbers.

In 2015, we lost 35,092 people on our public roads. And at NHTSA we know that that is not just a number. Those are mothers and fathers, brothers and sisters, coworkers, friends, colleagues. And the problem is getting worse. Last month, we announced that roadway fatalities in the first half of this year are up over ten percent.

And it is against this backdrop that the Department of Transportation, under the leadership of Secretary Anthony Foxx, has been working so hard on our efforts to accelerate the safe deployment of automated vehicle technologies. Because while

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automated vehicles carry enormous potential to transform mobility and reshape our transportation system, it is their awesome potential to revolutionize roadway safety that has us to motivated.

And there is one more number that helps explain why. That number is 94. That is the percentage of crashes that can be tied back to a human choice or error. That is a choice to speed or drive drunk, to send a text message from behind the wheel, or misjudge the stopping distance. That 94 percent represents the untold potential of automated vehicle safety technologies. We envision a future where advanced technologies not only help reduce crashes but a world with fully self-driving cars that hold the potential to eliminate traffic fatalities altogether.

The Federal Automated Vehicles Policy, which the Department issued on September 20th, is the world's first comprehensive government action to guide the safe and efficient development and deployment of these technologies.

And the policy covers four areas: One, vehicle performance guidance for automakers, tech companies, researchers and other developers, testers, and deployers of automated vehicle technologies; two, a model State policy to build a consistent national framework for the testing and operation of automated vehicles; three, an exploration of the use of our current regulatory tools that can be used to advance these technologies;

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and four, a discussion of possible new tools that the Federal government may need to promote the safe deployment of advanced technologies as the industry continues to develop.

I would like to share just a few thoughts about our approach. For 50 years, our traditional approach has largely been reactive. NHTSA prescribed safety standards and then responds to problems as they arise.

A traditional method of regulating these new technologies would be to engage solely in the rulemaking process, writing new regulations that prescribe specific standards, and typically, take years to take effect. Our view is that that approach would be slow. It would stymie innovation and it would stall the introduction of these new safety technologies.

Our policy takes a different path built on proactive safety which will better serve both safety and innovation. This policy allows us to work with automakers and developers on the front end to ensure there are sound approaches to safety throughout the entire development process.

This is a new approach and it is going to take some adjustment for everyone involved but we are confident that it will help us to accomplish two specific goals: first, to make sure that new technologies are deployed safely; and second, to make sure we don't get in the way of innovation. Our approach is not prescriptive. It does not tell developers how they must provide

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safety but, instead, builds a transparent and proactive approach to ensure that they are properly addressing the critical safety areas.

But that future is not without threats. As President Obama wrote when announcing the policy, "the quickest way to slam the brakes on innovation is for the public to lose confidence in the safety of new technologies. Both government and industry have a responsibility to make sure that doesn't happen."

It is our view the best way we can build that public confidence is by working together, showing the public that the government is on the side of innovation and that the industry is on the side of safety.

I will submit the balance of my statement for the record and I look forward to taking your questions. Thank you.

[The statement of Mr. Rosekind follows:]

*****INSERT 3*****

Mr. Burgess. The chair thanks the gentleman. Now, as I previously outlined, we will go back to member opening statements and Ms. Schakowsky is recognized for 5 minutes for an opening statement, please.

Ms. Schakowsky. I thank you, Mr. Chairman. I really apologize for being late this morning and I thank you for accommodating that and I look forward to the questions that we can ask of our witness.

I first want to take a moment to recognize a great loss in the auto safety community. On Thursday, Clarence Ditlow of the Center for Auto Safety passed away after a battle with cancer. For 40 years, Clarence led the Center for Auto Safety, where he was a tireless advocate for stronger and stronger auto safety standards. He fought for Lemon Laws to ease return of defective vehicles in all 50 states. And if you have ever had a recall on your vehicle, there is a decent chance Clarence was somehow involved in pushing the National Highway Traffic Safety Administration and automakers to take action. He provided tremendous insight to lawmakers over the years, including, as a witness before this very subcommittee.

Clarence continued fighting for consumers until his final days. As recently as September, he was working with my office on reducing the number of used cars sold with open recalls. He even weighed in on today's topic. In August, he wrote an op-ed

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on the importance of strong safety standards for self-driving cars. Clarence has an outstanding legacy but I know he saw much work still to be done. I can think of no better a tribute than to continue his fight to improve auto safety and I hope we can do so on this subcommittee.

Protecting consumers must be the key focus as we consider today's topic, self-driving cars. A car without a human driver could be an exciting development or a frightening proposition. Which one it is depends on whether we take the correct approach to the development of this technology.

One of the key arguments in favor of self-driving cars is safety. According to NHTSA, 94 percent of car crashes are caused, in part, by driver error. Automation does have the potential to help, ensuring that autonomous vehicles improve safety requires thorough testing and oversight. We must evaluate not only how the vehicles' features work but also the effect of those features on human behavior.

I appreciate NHTSA's efforts to be proactive in its approach to autonomous vehicles and I look forward to learning more about how its policy framework will work in practice.

As we think about the long-term potential of safe-driving cars, we also need to consider the intermediate challenge. We are not going to shift to 100 percent self-driving vehicles overnight. Even if this technology is adopted relatively

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quickly, we will see a transition period where traditional semi-autonomous and fully autonomous vehicles share the road. All those vehicles and their passengers must be able to safely interact. We should also recognize the impact the self-driving cars have on those who drive for a living, taxi drivers, chauffeurs, delivery men and truck persons, and truckers.

Automakers are still working through safety issues with autonomous vehicles. For example, two self-driving Teslas crashed this year. Cybersecurity is another critical area for autonomous vehicles to be successful. Hacking a self-driving car could put lives in danger. Developers must take the utmost precautions to prevent the cars' systems from being compromised and providing failsafe mechanisms of security measures are ever ineffective.

Accidents involving self-driving vehicles raise new questions. How safe must self-driving cars be before we are comfortable having them on the road? When something goes wrong, when is it the fault of the manufacturer and when is it the fault of the user? NHTSA is adapting its traditional approach to auto safety as it considers the design, use, and safety features of self-driving vehicles. I welcome this initiative but I want to ensure that safety remains paramount.

I also want to hear a firm industry commitment to safety and cybersecurity. As I said, innovation in self-driving cars has

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tremendous potential. If done right, this technology could save lives, increase energy efficiency, and provide convenience for consumers. We must make sure that the right policies are in place to achieve the maximum benefit from this technology. And again, I appreciate your indulgence and I yield back.

[The information follows:]

*****COMMITTEE INSERT 4*****

Mr. Burgess. The gentlelady yields back. The chair thanks the gentlelady.

Is Mr. Kennedy likely to be coming back or can we proceed with questions? Very well.

And Dr. Rosekind, we thank you for your testimony. We will move into the question and answer portion of the hearing. I am going to begin the questioning by yielding to Leonard Lance from New Jersey for his questions.

Mr. Lance. Thank you, Mr. Chairman. And good morning to you, Dr. Rosekind. I thank you and the other distinguished members of our panels who are appearing before us today on this important topic. And certainly, I thank you for your distinguished public service, Dr. Rosekind.

Automobile accidents accounted for over 35,000 fatalities in 2015, as you have indicated; 562 of those souls lost were from the State of New Jersey. By removing driver error, which accounts for the vast majority of these deaths, autonomous vehicles have the potential to be the single greatest achievement in auto safety in our lifetime, savings tens of thousands of lives each year.

As the subcommittee with jurisdiction over this topic and over the automotive industry, it is our job to make sure that innovation is allowed to occur and is not hindered by burdensome and unnecessary regulation while, of course, ensuring consumer safety which is paramount.

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Dr. Rosekind, the guidance states that it is not intended for states to codify as legal requirements for the development, design, manufacture, testing, and operation of automated vehicles. That is on page 11 of the guidance. Do you think that states should be codifying the guidance as some have signaled they intend to do?

Mr. Rosekind. As you have already cited the specific quote, and that was intentional to put in there, was for states not to codify. What you have highlighted was everyone wants to see a consistent national framework. Nobody wants a patchwork. And so what is critical right now is to really distinguish the Federal role and the State role and making sure for the moment that people are focused on the safest possible deployment within those Federal and State rules.

Mr. Lance. What would happen, in your professional judgment, if one State were to deem a self-driving automobile to be safe for testing and deployment but another State chooses to go in the completely opposite direction? It seems to me that would be quite a challenge but having served in a State legislature, having been the minority leader in our State Senate in Trenton, I am aware that there are State responsibilities as well. And how should we go through this challenging situation to make sure that safety is paramount and innovation occurs to make sure that deaths can be fewer than is now the case?

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Mr. Rosekind. So, that highlights the patchwork concern, which is all of us drive across this great country without worrying about what driver's license you have from your State or that the car is even legal in that State. Just think if an autonomous self-driving car stopped at every State line because it wasn't allowed there, or that every manufacturer or developer had to have 50 different approaches to dealing with -- so again, that is why everybody wants to avoid that patchwork.

Right now, I think the clarity of what the federal role is and the State role is the way to go. We have seen California wait for this policy to come out, make adjustments to try and be in line. We did the policy in collaboration with the American Association of Motor Vehicle Administrators, all 50 DMVs and we will continue to work with the states. But you have brought up an ongoing vulnerability here, as we move forward.

Mr. Lance. Are there certain states that are more likely than others to advance State initiatives, perhaps California, perhaps other states as well? And should we be discussing this with various State capitals or should our congressional delegations be discussing this with various State capitals?

Mr. Rosekind. We hope everyone is going to be discussing this. One of the things that you are highlighting is that there are some states that are really on the leading edge of this -- California, Michigan, Pennsylvania, Florida, District of

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Columbia actually has some work as well. And so there are a lot of ongoing discussions that are happening now.

I think the intent is for people to make sure they understand the policies and guidance in this area. And one of the things for all the states to understand, we try to make explicit, is states actually don't have to do anything in this area. There is no action needed for testing of deployment at this stage. If you are interested, as a state, then this policy outlines the Federal and State roles.

Mr. Lance. Dr. Rosekind, you mentioned Michigan, Florida, and Pennsylvania. I have nothing bad to say about any of those three states this week, Dr. Rosekind.

The Federal Automated Vehicle Policy mentions the possibility of convening a commission to study liability insurance issues. Do you have a view on that?

Mr. Rosekind. I think that is a great example of in the Secretary's letter in the beginning he really highlights there are a lot of unknowns that have to become known. So, that is a specific example of how do we handle liability. If we don't come out with the answer, we suggest a commission that would deal with that for the states to understand the best way forward.

Mr. Lance. Thank you very much, Dr. Rosekind and my time has expired.

Mr. Burgess. The chair thanks the gentleman. The

gentleman yields back. The chair now recognizes the gentlelady from Illinois, Ms. Schakowsky, 5 minutes for questions, please.

Ms. Schakowsky. Dr. Rosekind, I first wanted to thank you for your service as Administrator of NHTSA. I appreciate being able to work with you. I don't know but this may be your last time testifying before this committee as part of the Administration and I just want to thank you very much for the work that you have done and for consumers and working with this subcommittee.

So, I have two questions. I am going to ask them together and then leave the time to you.

While the expected benefits of automated vehicles have been widely discussed, so, too, have their technological shortcomings, reports indicated that potholes, construction, pedestrians, pavement covered in rain or snow may still flummox the vehicle's operating system. So, the first question was can you describe what some of the real world testing is finding? What are the problems and do they tell you and the industry about when fully autonomous vehicles will be ready to safely carry passengers without human intervention? That is the first question.

And the second one, recent controversies surrounding General Motors, Volkswagen, Takata air bags, and others show that the automotive industry doesn't have always a great track record with the consumer trust in recent years.

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So, if the industry says trust us with autonomous vehicles, why should consumers take them at their word and what assurance, then, can the industry give consumers and give the regulators that their vehicles will be safe to operate?

Mr. Rosekind. So, to your first question, I would say prior to January that was the number one issue that everyone raised. When will they be here? And what was interesting is in January we were pointing out at both DOT and NHTSA that frankly, these technologies are already on the road. We already have adaptive cruise control, automatic emergency braking, blind spot monitoring, Lane Assist, all these things are already on the road. So, one of the challenges we have had is actually helping people to learn about the different levels of automation. And just to be very, very sort of strict about it, the highest levels of self-driving vehicles is where the passenger, driver, individual in the vehicle, perhaps no individual at all, has no responsibility for monitoring the vehicle or the environment. Those are the highest levels, basically, of a truly self-driving vehicle.

So, to your question, I am not sure anybody knows quite yet how far off we are. In fact, I would say in the last 6 months, we are starting to see people actually acknowledging how hard this problem is to get to a full self-driving car.

On the other hand, we also have level 3 which is where the

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operator still has to be engaged, both in monitoring the vehicle and the environment. And there may be situations where that operator, that driver, would have to actually have the vehicle hand off to the operator in some situations that you were just mentioning, weather conditions, infrastructure that wasn't known, et cetera, the driver has to still be vigilant in monitoring what is going on. People question whether that is even possible with this new technology.

So, what you have just highlighted is when -- nobody knows. And the questions remain, do we still need that driver engaged? Can we go to full self-driving? Those questions remain open.

And I would just say that the Department has really left open the answer to that by letting the data tell us whether or not level 3 is possible, full self-driving level 5, how those will go forward. The data will tell us where we are.

So, I think everything you just highlighted is exactly the very challenging sort of thread the needle issues we have.

Ms. Schakowsky. So, we may have implementation of different levels, though, in a different timetable.

Mr. Rosekind. Correct. And that is why I say your issue about transition -- so I would love to point out that if there were a perfect fully self-driving car available tomorrow, right now, the average age of vehicles is 11 and a half years, it would take 20 to 30 years for the whole fleet to take over if we had

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full self-driving.

So, to your point, for the next 20 or 30 years at least, we will likely have a mixed fleet of different levels of automation and different people actually out there driving.

And I think that is also extremely well placed, which is a lot of folks have talked about the big era of recalls that just happened. That is not good. We have tried to move to a proactive safety approach. I would highlight that NHTSA has not given up and will continue to pursue all of our rulemaking and enforcement authorities. Anybody who has watched us over the last few years knows we will use whatever we need to to help keep people safe on our roadways.

But one of the things I think we can highlight is a year ago in January the Secretary announced a proactive safety agreement with 18 global automakers. That wasn't just words. In fact, we have already seen best practices come from the industry, basically on cybersecurity. We saw 20 of them come together and basically make a commitment to get automatic emergency braking on the road standard in all of their vehicles by 2022, beating regulation by probably 3 to 4 years. And we just recently had a Volvo truck recall that hit 100 percent completion rate for 16,000 vehicles, which is sort of groundbreaking with the speed that was done. That was part of that agreement, 100 percent completion rate. It is only the beginning but it is not just talk. We are seeing very

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concrete actions.

But to your point, we have to watch to make sure that they actually meet what the requirements are.

So, I will just close. There is a 15-point safety assessment that people have to provide for us. There is a lot of discussion is it required or not. If you want everyone to trust what you are working on as a manufacturer, technology developer, we think you would want the most transparent, thorough public notice of what you are doing to address safety up front.

Ms. Schakowsky. Thank you very much.

Mr. Burgess. The chair thanks the gentlelady. The gentlelady yields back. The chair recognizes the gentleman from Kentucky, Mr. Guthrie, 5 minutes for your questions, please.

Mr. Guthrie. Thank you, Mr. Chairman and thank you, Dr. Rosekind for being here today. We appreciate it a lot.

I understand the importance of self-driving cars, as we look for ways to dramatically improve traffic safety. In Kentucky, alone, we have had 761 fatalities last year. So, I know we need to better understand this issue.

But I had a chance to meet with the MTC truck driver training school in Elizabethtown. And of course, they are closely following the development of this new technology. And they brought this point up to me and I had never thought of it or considered it but I understand that there are homeland security

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issues, which have been raised in commercial transportation sector and it is this 15-point list on safety expectations for autonomous vehicles includes a point on digital security to prevent hacking into vehicle systems. I never would have thought of that until they brought that up.

And has NHTSA considered the broader homeland security issues surrounding digital security of autonomous vehicles?

Mr. Rosekind. Yes, that issue has actually come up. We had two public meetings in our open docket for months while we were creating the policy and those issues were brought up already. So, frankly, not only are we looking at them but Homeland Security has already been informed because they have a lot of the issues and questions --

Mr. Guthrie. That was my next question. Are you all coordinating with each other on this?

Mr. Rosekind. Absolutely. We have already had meetings.

Mr. Guthrie. Okay, thank you. Well, on a related note in your testimony, you mentioned that the guidance was developed -- a different theme here -- the guidance was developed in close coordination with the American Association of Motor Vehicle Administrators, individual states and other stakeholders. Who were those other stakeholders mentioned in your testimony?

Mr. Rosekind. We have a long list. I am happy to send--there was a public docket. We have all kinds of --

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Mr. Guthrie. Okay, probably easier to just submit it.

Mr. Rosekind. Yes. Yes, we will submit that to you.

Mr. Guthrie. Okay, good, if you don't mind doing that.

Mr. Rosekind. Sure.

Mr. Guthrie. How do you expect entities to certify compliance with each of the 15 areas or certify that they are at least addressed, each of the 15 areas? How are you going to ensure?

Mr. Rosekind. Yes and thank you because you just raised a really critical issue. We identified 15 safety areas that they have to address. That is what is included in the letter. But it is very important to realize we don't tell people how to get there. You have to address this but there is no judgment about compliance or not because we don't set a prescription there. And so our evaluation is whether they have addressed it or not, not whether there is a bar that they have passed.

Mr. Guthrie. Okay, good. And what kinds of information do you expect to collect on each of the 15 areas? I guess my understanding from the letter is it is only expected to be two pages long. So, I think you might have answered that question. What do you expect them to do, I guess, versus what you are asking them to do?

Mr. Rosekind. That is actually a good question. We haven't addressed that yet. I will just say that we just last week had

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another public meeting and one of them was specifically on the letter. Right now what we are telling people is not a page limit but this is literally a C-suite. If a CEO had to get briefed on these 15, what information would you provide that individual so they could sign off on it?

Mr. Guthrie. Okay.

Mr. Rosekind. So, there has got to be enough to make a decision. If we need more information, we will ask for it.

Mr. Guthrie. Okay, good. And does NHTSA plan to make the safety assessment letters public and do you expect the safety assessment to include confidential business information that would need to be redacted?

Mr. Rosekind. So, we absolutely do hope to have transparency, so it would be public. And NHTSA, for a long time, has great experience in protecting confidential business information. That is not the intent of that letter. It really is to focus on safety and letting manufacturers, developers, et cetera, let the public and us know how they are addressing it.

Mr. Guthrie. Well, thank you and I appreciate you thorough answers and in the submission of the other stakeholders was something we would request. You have answered my questions and I yield back my time. Thank you.

Mr. Burgess. The chair thanks the gentleman. The gentleman yields back. The chair recognizes the gentleman from

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California, Mr. Cardenas, 5 minutes for questions, please.

Mr. Cardenas. Thank you. And thank you, Mr. Chairman for having this hearing. It couldn't be soon enough because this is moving very, very fast and hopefully we will have tremendous success not only to the manufacturers but to the consumers and everybody in-between.

Dr. Rosekind, my first question has to do with the timing. There is so much out there. Some people are saying we are going to see these cars on the road soon in limited or mass production, et cetera. What does soon mean from what your vantage point is? Are we looking at 2017, 2018, 2025? And if so, what is the likelihood of us seeing mass utilization on our public roads?

Mr. Rosekind. We are already seeing certain safety technologies on the roads today. So, adaptive cruise control, automatic emergency braking, blind spot monitoring, these technologies are already available. And so when people say when will we see them, they are already here. When we look at fully self-driving, those are years off. And in fact I was just commenting I think just in the last 6 months or so, we are hearing from a lot of folks that they are understanding how hard a problem this problem really is. So, as much as people are giving us target dates, we will have to wait and see those coming.

The final thing I would just say is what you are also highlighting is there will probably be several decades where we

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will have a mixed fleet of different levels of automation and people still with their hands on the wheels that all of us will be in for at least again potentially 20 plus years.

Mr. Cardenas. Well, this is a very individual matter for those who would ever think of driving a fully automated vehicle. My father 40 years later used to tease my mom how the first time he drove up in a little Model T in the 1940s, she wouldn't get in the car. This contraption; I am not going to sit in it. However, we are talking about today's contraptions. Sorry for the rudimentary description but it is my understanding that because of the interest in ensuring that components of autonomous vehicles are safe from cyber intrusion, some have expressed concern about retrofitting existing vehicles with the technology that would help prevent that. Does aftermarket autonomous technology present cybersecurity risks?

Mr. Rosekind. Actually, all the vehicles create cybersecurity vulnerability. So, on our list of 15 safety issues, cybersecurity is one of them and, basically, the same concerns as you apply to new would have to be to any kind of retrofit as well.

Mr. Cardenas. Okay. Now, when it comes to the fully autonomous vehicles because I think that is the Holy Grail of what the industry is looking at and what I think quite a few people on this plant would love to see that happen for a lot of good

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reasons, but what concerns me is when people try to rush things through and push a department like yours, an organization like yours to just get it done, it is unfortunate, because there is no shortage of people on any given day that would go ahead and jump off of a mountain with a little tiny parachute and think that is the most awesome thing in the world. However, if that parachute doesn't come out, one person gets hurt and they are in control of themselves, if they have the freedom to do so and they did so.

But the issue that we are talking about here today, if somebody actually does something that they find is not risk-taking at all, we are talking about the public roads. We are talking about if something goes wrong it is not just the person who made the decision to be in that vehicle. It is other individuals out there and that is the demand and the responsibility of your department that I respect so much.

So, with that having been said, how do you feel about the resources that you have and the ability for you to keep up with this tremendous demand that the world is saying hurry up, we need to see this happen. And with all due respect, being Americans, we always like to be the first.

Mr. Rosekind. Let me actually slightly expand that, which is when we did the press conference to issue the policy, the Secretary's last question is does DOT and NHTSA have the expertise

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and resources to get this done. And I love this Secretary's answer because basically we are the ones who created it. We have the expertise but you are bringing up a really, really critical element. And that is, with the explosion innovation that we all want to see to help with safety, the agency absolutely will need to build on that expertise and expand the resources to make sure we can really timely meet the needs that are going to be out there to get safety.

There are some things we have suggested that I think have just totally surprised people about our commitment to get interpretations out in 60 days, exemptions in 6 months. You need resources to pull that off. Even the letters we are saying 4 months, that is up to 4 months. If we want those evaluations done, we are going to need to make sure that the expertise we have grows and we have enough resources to meet the demand quickly but safely.

Mr. Cardenas. Because lives are on the line, right? Unfortunately, ultimately, that is what it is and we are not just talking about the person that chooses to be in such a vehicle. We are talking about people around them that gosh, I don't know what the statistic is but I would imagine the average person passes up hundreds, if not thousands of people on any journey to and from work on either side of them.

So, thank you for doing the job that you have. Hopefully, we will see Congress, who has the power of the purse, continue

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to give you the resources you need to keep up. Thank you.

Thank you, Mr. Chair. I yield back.

Mr. Burgess. The chair thanks the gentleman. The gentleman yields back. The chair recognizes the gentlelady from Indiana, Mrs. Brooks, 5 minutes for questions.

Mrs. Brooks. Thank you, Mr. Chairman.

As Congressman Lance just talked about New Jersey last year, there were 821 driving fatalities in Indiana alone, which was a ten percent increase from the previous year. But they, obviously, we talk about these big numbers but one particularly that happened in my district, Susan Jordan, who is the principal of Amy Beverland Elementary School served in Lawrence, Indiana, was killed tragically by a school bus that rolled in front of her, as she pushed children out of the way. And so for many families who have lost loved ones, I would say the auto industry and ensuring that cars, and buses, and other vehicles are as safe as possible, we need to not stand in the way of this innovation, whether it is pedestrian detection, lane warnings, pre-collision assist that can eliminate the human error that could save lives like Principal Jordan's.

I want to ask a question, though, with respect to NHTSA's Federal Automated Vehicle Policy where you are requesting large amounts of data from the auto industry on the operation and the execution of the highly autonomous vehicle technologies that

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includes a lot of potentially sensitive information about businesses and consumers. But on the other hand, we recognize, and you have just talked about it in response to Congressman Guthrie's question, multiple attacks from whether it is foreign or domestic bad actors attempting to get that data.

What kind of, without going into great detail, what kind of protections does NHTSA plan to have to ensure that this sensitive information isn't getting into bad actors' hands?

Mr. Rosekind. First, thank you for telling Principal Jordan's story. We talk about these big numbers but everyone is a person and a face. So, thank you for doing that.

Mrs. Brooks. You are welcome.

Mr. Rosekind. It just is so critical.

And you are bringing up a really interesting piece, which is, as we talked about earlier, our intent is to get literally a CEO summary of what information goes into the safety assessment and then the developer, automaker, et cetera, they keep all that other data. So, it is only if there is information that we ask for that they are going to have to give us more. And the other part is we only need to see confidential business information that helps to make their point. Everything else, they get to keep. And for decades, we have been protecting that.

So, we are looking at the safety information. We just had a meeting on the letter to try and decide how to get information

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and you can keep all that confidential business information away and redacted as needed, we have been doing that forever. We will continue to do that here.

Mrs. Brooks. So, you are indicating that NHTSA is not going to be keeping the sensitive competitive information between the different automakers.

Mr. Rosekind. We are not actually interested in that. We just want to know here is 15 areas. Tell us how you have actually addressed it. Part of the way that we are actually supporting innovation is I hope everyone in the room would come up with a different way of handling each of those safety areas. And then we will let the data tell us which ones are actually going to be the best for the future.

Mrs. Brooks. And with respect to the auto industry's information showing an analysis center, what role are they playing or should they play in addressing the cybersecurity issues>

Mr. Rosekind. Critical. I mean basically with a lot of urging from NHTSA and a lot of work on the industry's part, they have come up with this cybersecurity mechanism to really help deal with the vulnerability. They will be a core part of protecting these vehicles in the future.

Mrs. Brooks. It is my understanding that the safety assessment letter is requiring, when any significant update to a vehicle is made, that NHTSA requires the manufacturer to submit

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the safety assessment letter. Can you please explain what is meant by a significant update and the impact such a process will have on testing that the developer of the autonomous vehicle is forced to submit a new letter and if it is every 4 months on any changes made during testing? Can you talk more about what the meaning of significant changes means?

Mr. Rosekind. This is why our interactions have been so critical because, basically, if you have a vehicle that has only been driving on the highway and now it is going to go in a city, that is significant. If you have a vehicle that yesterday hit a pothole and now hit has been programmed to miss the potholes, we don't need to know about that.

And when you submit your letter if of the 15 there are only 2 that have been affected, you only need to send us those two areas.

Mrs. Brooks. So, are you leaving it up to the manufacturers to determine the definition of significant or is there -- are there a number of examples that they are being provided to help them determine what is significant and what is not significant?

Mr. Rosekind. So we will be creating a template for the letter, so people have a sense of what we are looking for.

Mrs. Brooks. Okay.

Mr. Rosekind. We will be having guidance on where to fit their level of technology and automation for them. We will have examples of what is significant for people as guides.

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Mrs. Brooks. And what happens if a manufacturer doesn't submit the safety assessment letter? Are there ramifications?

Mr. Rosekind. That is probably one of our biggest fears, frankly, which is that this is an opportunity for folks in this area, in a proactive way, at the front end to show us what you are doing about safety. We would hope, whether it was required or not, it doesn't really matter, you want to show the public and NHTSA what you are doing to address safety in these vehicles. That is an opportunity. We hope everybody is going to take it and be enthusiastic about it.

Mrs. Brooks. But right now, NHTSA doesn't have the authority, is that right, if a manufacturer chose not to submit a letter? Is that authority you would like to have?

Mr. Rosekind. So, it is not required at this point. It is a policy. But to your point, one of the areas that we have actually identified as potential future regulations would be to require the letter, which is a great example of require the letter but stay nimble and flexible to what the categories are that are covered. In the future, there may only be ten areas that are needed. In the future, there could be 20.

Mrs. Brooks. Thank you. I yield back. Thank you.

Mr. Burgess. The chair thanks the gentlelady. The chair recognizes the gentleman from Oklahoma, Mr. Mullin, 5 minutes for questions, please.

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Mr. Mullin. Thank you, Mr. Chairman. Doctor, good to see you again. Thank you for the work you are doing here.

I want to kind of follow-up a little bit on what my colleague from Indiana was questioning about. I think clarity is, obviously, very important and we don't want to be over burdensome on new technology. We don't want to stifle the entrepreneur that is going to be out there that is going to be making the investment because this is investment. It is an investment in an unknown area knowing where the regulators are going to fall into.

But I think we all are looking for just an idea of where the floor is. So, if they are going to be investing, they can be investing in the right direction. And so I would like you to speak a little bit on that. Where do you feel like the floor is going to be so we can move forward with this technology? I will be honest with you, I am not a big fan of it. I like driving. I mean my wife drives an SUV that has got the adaptive cruise. I can't stand it. Every time I get close to a line, it vibrates on my back side because of the seat and it just scares the living daylights out of me but I get it. My wife loves it.

And so I see the need for it for those that like the idea. So, as the technology moves forward, if you could give us some direction on where you are moving so we can work with you on it.

Mr. Rosekind. I want to hit that point, though, I think which is --

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Mr. Mullin. The vibrating part?

Mr. Rosekind. The fact that we are not going to take the steering wheel out of some people's hands.

Mr. Mullin. Right.

Mr. Rosekind. I am from California. It is just the top is down and you are on Highway 1 with the Pacific Ocean on the side. It is like people are going to want to do that for a long, long time. And for all of our belief in the opportunity to save lives, this is the idea. We are going to have a mixed fleet for a long time. People who want to have their hands on the wheel, it is just going to be there for a long time.

So, to your point, though, about what kind of guidance you get, the way the policy is set up is to identify specific areas within safety that have to be addressed without prescribing how. It is basically DOT and NHTSA's way to support innovation. So, we would love to see as many different approaches to how to deal with that safety as possible. Show us what data you have.

If you think about the future path, at some point, there will probably be best practices accepted by the industry. Those will be the ones that have data that have demonstrated this is the way to go. If there is future regulation, that should come from the best practices.

Mr. Mullin. Some of the manufacturers that I have heard from, though, they are fearful of sharing the technology. I mean

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this is a race to the finish line. The only problem is, we don't know where the finish line is.

Mr. Rosekind. And that is a great point, which is people have talked. We have suggested there about data sharing, for example. And people are very concerned because data means money. Our issue is all about the safety. So, just think about sharing that data so that one crash would be able to educate an entire fleet to improve everything literally overnight. That would be great.

We are interested in the safety, not the solution that people use that could be proprietary. That is for them to keep confidential.

Mr. Mullin. Thank you. I yield back.

Mr. Burgess. The gentleman yields back. The chair thanks the gentleman. The chair would remind the subcommittee that the chair allowed members to go first. So, I am going to ask my questions now at the end.

And Dr. Rosekind, again, it has been a privilege to come to the subcommittee. Every time you are here, you and I talk briefly about the safecar.gov Web site so that people can check for recalls on their vehicles. And I just think it is extremely important, as we are coming into the Thanksgiving driving season. You ought to do it. You ought to do it for your spouse's car. You ought to do it for your kids' cars. You ought to just be sure.

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As we have learned over the last year and a half or 2 years, the recalls can change and what was not under recall a few months ago, could be under recall today. So, I do encourage people to take advantage of the fact that you will make that information available to them. And although it is not part of our hearing today, I wonder if you could give us just a brief update of where we are with the Takata air bag situation and what you see as some of the next steps.

Mr. Rosekind. And I just have to say every time I have appeared before you, you make sure safercar.gov gets into the record, that there is a point on making sure people are thinking about this. And from an agency whose mission is all focused on lifesaving, we always appreciate that so much.

For Takata, we are at about 29 million vehicles, about 46 million inflators. Maybe 20 percent have been repaired at this point. We are imminent for basically a new coordinated remedy that will have sort of the years of when supplies and fixes need to come. So, that will be out literally within weeks we hope of what sort of the next phase will be.

I will say, tragically, 9 of the 11 lives that have been lost had to do with alpha inflators, ones that were actually from 2001-2003 recalled 2008-2011. About 300,000 of those still exist out there. They have a 50 percent of rupturing in a crash. We are really working with Honda and Acura, in particular, to try

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and get those off the road. So, while there is --

Mr. Burgess. So that you are --

Mr. Rosekind. The 2001 to 2003 vehicles, and these were actually recalled in 2008-2011. So what happened was, because of the most recent activity going on, testing that was never done back then was recently done and that is how we discovered these alpha inflators have a 50 percent chance of rupturing.

The Secretary came out and basically said don't drive it unless you are going to a dealer to get it fixed. And so we are working with Honda to basically figure out every possible thing that could be done to find those people. Nine out of the eleven lives lost were those alpha inflators.

Mr. Burgess. Well, I am encouraged that you say that the solution or a solution is now within reach and that is -- I am grateful for that.

Let me just ask you, and several people have asked you about the letters, the safety assessment letter on self-driving vehicles. And I appreciate why that information is necessary and, unlike you, I think more data is good. At the same time, from the manufacturers' perspective, I can see that perhaps there might be some liability concerns about putting too much information out there. And then, of course, the tendency is to hold back because you don't want to incur that liability. Have you worked through that issue at all?

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Mr. Rosekind. We are working through it. And what we are doing, literally just last week, we had a meeting specifically, a public meeting with an open docket for people to tell us how they think that letter should be structured and what content there should be. We will create a template so people have a guide. And we are trying to be explicit that it is not the confidential business information that we are after. It is tell us how you have addressed these particular safety issues.

And the agency has been dealing with confidential business information for decades. And so we already have experience working with the manufacturers to know how to protect them. So, we do need to work that out but we are pretty confident that is an area, knowing it is an issue, we can figure it out.

Mr. Burgess. One of the things I really dislike about driving is to have to get a vehicle inspection every year but I do it because it is the law in Texas. You are talking about systems that are going into cars that likely are going to require some maintenance, some calibration, some checking from time to time. Do you see this as being included as part of a standard vehicle safety inspection?

Mr. Rosekind. That is a great question. And part of that is because one of the clear things out of Takata was time, that those inflators basically had a service life. And so that question is now being asked of the future. These sensors, radars,

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cameras, LIDARs, et cetera, clearly have a service life. How they will be maintained is an open question that needs to be addressed in this coming period.

Mr. Burgess. Every time I back out of my driveway and the little backup camera comes on and I, of course, think of Ms. Schakowsky because she is associated with that. But I have also learned, since having one of those backup cameras on my car, that every now and then I have got to get out and squeegee the little sensor or the little lens because it can get so occluded that I mean I couldn't see anything. If the neighbors' cat was walking back there, it would be lights out.

So, I understand that there is a modicum of maintenance that the operator must provide. The vehicle can't do everything for you all the time.

Again, it has been a pleasure to have you in the subcommittee. Oh, I beg your pardon. Mr. Kinzinger has showed up. So, let me yield 5 minutes to Mr. Kinzinger for questions.

Mr. Kinzinger. Thank you, Mr. Chairman. Just when you thought you were going to go home.

Thank you for holding the hearing today on autonomous vehicles. Next week is Thanksgiving or it is coming soon, I guess. Yes, next week. Crazy! And as a country, we will put millions of miles on our vehicles. It reminds us that we need to do better as a nation to drive safer and reduced vehicle

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fatalities. As so many of our colleagues have pointed out, vehicle accidents are claiming too many lives and, as of late, that rate is growing in the wrong direction.

In Illinois, 998 lives were lost last year in vehicle accidents. Tragically, it is an increase of eight percent from the year before.

Like many in this room, I see great promise in how connected vehicles, assisted driving technology, and autonomous vehicle technology can play in reducing the number of vehicle deaths. I applaud NHTSA for laying out a framework that will allow automakers, software developers, and other stakeholders to blaze a path forward in transforming vehicles and making the roads in the future safer. I hope today's hearing is a starting point for our committee, as we consider the wide-ranging policy issues that autonomous vehicle technology touches.

But Dr. Rosekind, again, thank you for your service. Thank you for everything you have been doing. I would like to ask you about the Federal Automated Vehicles Policy released in September, as a few people have mentioned.

It mentions the possibility of convening the Commission to study liability and insurance issues and it also clearly states that insurance and liability apportionment are State responsibilities, as they are now and makes no argument for that change.

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What role do you see auto insurance playing in the future?

Mr. Rosekind. That is to be determined. Great piece to bring out, which is there are a lot of unknowns here that need to become known. That was an example of since we don't know that but we know the question, let's have the states get their group together to figure out how this is going to go for the future. Big questions there.

Mr. Kinzinger. Okay. And the AV guidance does a really good job defining the roles of the federal regulators in the states. NHTSA is responsible for overseeing the design and performance of motor vehicles, while states regulate things like driver licensing, insurance liability, et cetera. The goal is for manufacturers to be able to sell, obviously, across all 50 states. In fact, guidance says that states should not codify them.

But would you agree that if a State were to require compliance with the guidance before an AV could be sold in the State, that would be the same thing as codifying the guidance and why or why not?

Mr. Rosekind. So, the good news now is everybody is very interested in seeing a unified, consistent framework. And so to your question, what we are already seeing states basically challenge with is what language they use to describe exactly what you are talking about. So, if somebody says certify the letters

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there, they are worried there is a whole other evaluation going on when in fact the State may just say make sure we get a copy of the letter. But those were exactly the things we have to make sure there is consistency for everyone so that patchwork doesn't get created.

Mr. Kinzinger. Okay. And are you all monitoring what legislative proposals are coming out from the state, since the agency issued its guidance? And is NHTSA continuing to work with states on regulatory policy addressing self-driving vehicles?

Mr. Rosekind. We are not only monitoring but we actually made an effort before the policy was released to put in a chart with all of that but it is moving too fast. So, we are going to continue monitoring.

And we have just had two meetings, one about the policy, one about the template letter, and the third one is going to be with the states to talk about the State policies and other actions they might take. We are hoping that will come up this month or right after the new year.

Mr. Kinzinger. Great. And the policy asks automakers and other entities to voluntarily submit a letter referred to as a safety assessment letter that outlines how the entity has addressed 15 areas prior to the testing and deployment of autonomous vehicles. Can you explain what NHTSA will be doing with the safety assessment after it is received?

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Mr. Rosekind. So, that letter is intended to basically have whoever the manufacturer, developer, tech company, et cetera, communicate to NHTSA and the public how they have addressed those 15 safety areas. And we are trying to make it very clear we are not passing judgment. We are just ensuring that they have addressed all of those different areas. We are going to have a template for what that letter should look like. We are going to have a template for what our response could look like. And frankly, right now, the first response you might get would just be thank you or it could be send us more information about X.

Mr. Kinzinger. Okay. So, you kind of have a plan in place to determine if it is adequate or whatever. And then as or will NHTSA hire subject matter experts like software engineers to analyze and understand software updates submitted for review?

Mr. Rosekind. So, when Secretary Foxx answered the last question when this policy was issued, that question was so does NHTSA have the right expertise. He pointed out that it was NHTSA that created this policy.

We have got the expertise. We will be looking to expand that and resources because if this area grows the way we think it could, there are going to need to be more people with that expertise into the future.

Mr. Kinzinger. Okay. Well, I just want to say again, thank you and thanks for answering my questions quickly and efficiently.

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Mr. Chairman, I will yield back the balance of my time.

Mr. Burgess. The chair thanks the gentleman. The gentleman yields back. The chair recognizes the gentleman from Florida, Mr. Bilirakis, 5 minutes for questions, please.

Mr. Bilirakis. Thank you so much. I appreciate it. Thank you, Mr. Chairman. I thank the panel for their testimony.

I understand that NHTSA is thinking about future regulations requiring manufacturers to submit a safety assessment letter. Do you think that the safety assessment letter, if required, would preempt State laws and regulations regarding design and performance of autonomous vehicles?

Mr. Rosekind. It is really two different elements we are getting to there. One is the 15-item safety assessment is basically to let NHTSA and the public know that these 15 areas of safety have been addressed. It is, as a policy, not required. And what we have identified, if there were regulation, there might be a requirement to submit that letter but we would keep it nimble and flexible. That 15 could become 12 or 20, based on future innovations, basically.

And really at this point, part of what we tried to do with the states to avoid the patchwork was clarify here is what the federal agencies will take care of; here is what the states should take care of. We have those vehicle standards to take care of. They should be handled by this letter.

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Mr. Bilirakis. Thank you. In your view, would inconsistent State laws and regulations -- I know you addressed this somewhat. Would inconsistent State laws and regulations related to the design and performance of autonomous vehicles hinder innovation in this lifesaving technology? How do we ensure that State laws and regulations on self-driving cars are uniform and consistent? And is there a role for Congress to play?

Mr. Rosekind. So, you have just identified, and it has been raised previously, that is a vulnerability that remains. If there is a patchwork, that could really hinder not just innovation but the opportunity to save these lives. And so right now, the policy outlined some very specific ways for states, if they choose to get involved, here are some errors they could start with. This is an area I think we all have to stay tuned as meetings and discussions go on to see whether or not everyone is going to actually deliver on that unified consistent framework.

Mr. Kinzinger. Thank you. Next question. With regards to the safety assessment letter, does NHTSA anticipate suppliers would have to apply for exemptions to test vehicles with level two to five systems or would be the safety assessment letter be limited to manufacturers?

Mr. Rosekind. If you look, the policy actually is really explicit. Anybody who is in this arena should be submitting a letter, potential, so that is manufacturers, suppliers, tech

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companies, et cetera. One of the questions we have been getting, though, is if you have a collaboration, say between the manufacturer, a ride-sharing, and a technology company, who submits the letter. And that is something where we will work with them to basically decide whether we get one letter or at least one integrated one that has all three of those represented.

Mr. Kinzinger. Thank you. Have you worked with the Federal Motor Carrier Safety Administration in the development of these guidelines and have you been working with the trucking industry in developing self-driving policies?

Mr. Rosekind. So we were, as part of Department of Transportation, we are in touch with all of the department, but in particular the Federal Motor Carrier Safety Administration about this as well.

We had two public meetings and an open docket. So, I can tell you the trucking industry, we had a least dozen interactions with them. And in fact, to the public docket, their trade association submitted comments. So, there has been a lot of interaction with them already and there will continue to be.

Mr. Kinzinger. Very good. Thank you. I yield back, Mr. Chairman. I appreciate it.

Mr. Burgess. The gentleman yields back. The chair thanks the gentleman.

There being no other members wishing to ask questions, I do

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want to thank our witness for being here today. This will conclude our first panel. Again, Dr. Rosekind, thank you for your service. We will take a brief, two-minute recess to set up for the second panel.

[Recess.]

Mr. Burgess. Welcome back. Thank you all for your patience and I thank our panel for taking the time to be here today. We will move into the second panel for today's hearing. We will follow the same format as the first panel. Each witness has 5 minutes for an opening statement, followed by questions from members.

For our second panel, we have the following witnesses: Mr. Mitch Bainwol, President and CEO for the Alliance of Automobile Manufacturers; Mr. Kirk Steudle, Director at Michigan Department of Transportation; Ms. Laura MacCleery, Vice President of Consumer Policy and Mobilization at Consumer Reports; Ms. Ann Wilson, Senior Vice President at the Motor and Equipment Manufacturers Association; and Mr. Gary Shapiro, President and CEO at the Consumer Technology Association.

We do appreciate you all being here today. Mr. Bainwol, why don't we begin with you? You are recognized for 5 minutes for an opening statement, please.

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STATEMENTS OF MITCH BAINWOL, PRESIDENT AND CEO, ALLIANCE OF AUTOMOBILE MANUFACTURERS; KIRK STEUDLE, DIRECTOR, MICHIGAN DEPARTMENT OF TRANSPORTATION; LAURA MacCLEERY, VICE PRESIDENT OF CONSUMER POLICY AND MOBILIZATION, CONSUMER REPORTS; ANN WILSON, SENIOR VICE PRESIDENT, MOTOR AND EQUIPMENT MANUFACTURERS ASSOCIATION; AND GARY SHAPIRO, PRESIDENT AND CEO, CONSUMER TECHNOLOGY ASSOCIATION

STATEMENT OF MITCH BAINWOL

Mr. Bainwol. Thank you, Chairman Burgess, Ranking Member Schakowsky, and members of the subcommittee, thanks for having me back to testify today on behalf of 12 iconic automakers, who are engaged in a massive exercise in self-disruption.

I spent 8 years in the music industry as a digitization of the music wrecked business model and devastated property rights. There was little that industry could do. Autos are in a very different spot, we are manufacturers and technology companies and mobility providers and we are innovating rapidly.

Three converging trends are driving dynamic change. The first trend is the rapid emergence of crash avoidance technologies that will culminate in self-driving cars.

The second trend is the evolution of ride and car-sharing starting with Uber, Lyft, Car2Go, and others, but swiftly moving to a wide range of other models. Sharing will reduce ownership

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rates to some degree but also shorten fleet age.

And the third trend is the gradual evolution in power trains toward electrification that, in the present low gas cost context, is being driven more by policy mandates than by consumer demand.

Combined, these trends are changing mobility profoundly and as mobility changes, the overriding goal of my members share is to ensure that consumers are able to afford these vehicles that offer a higher efficiency and enhanced safety features. The faster we can safely and affordably move to the future, the better.

While the introduction of self-driving cars is just around the corner, the transition of full autonomy will take two generations. Moody's predicts these cars will not be a majority of the fleet until 2045 or ubiquitous until 2055.

But the important fact is that benefits already are materializing. First, safety: 99 percent of road fatalities are the result of behavioral issues, environmental circumstances, and infrastructure limitations, rather than car defects. Technology addresses many of these challenges by helping to avoid crashes altogether.

Elon Musk says that moving too slowly will kill people. I might say it less provocatively and Tesla is not a member but he has a point. We need to lean forward.

Second, technology can reduce carbon and strengthen the environment both by mitigating congestion and by facilitating

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more efficient use of the automobile.

Third, technology can enhance access for the young, the old, the disabled, and the economically disadvantaged. Fourth, individuals and businesses will benefit from time savings and meaningful productivity gains, helping society and the economy.

Fifth, the combination of lower per mile cost and higher cost utilization rates resulting from ride-sharing has the potential to reshape mass transit. For all of these reasons, most stakeholders believe accelerated deployment is highly desirable subject to ensuring a material net safety gain. But we also know that the traditional regulatory mechanisms can't handle the space of innovation.

Administrator Rosekind and Secretary Foxx put their fingers on this problem and deserve considerable credit for seeking a new approach, facilitating the proper mix of oversight and regulatory flexibility. It is not an easy puzzle and we understand that committee members will have different visions about what it means to be nimble and flexible while also offering predictability and stable roles.

We are carefully examining NHTSA's guidance and will formally respond a week from today at the deadline. That response will be shared with that committee. And we fully expect the Trump administration to put a stamp on this policy. Congress ought to as well.

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The feds have traditionally regulated the car; the states, the driver. With autonomy, the car is the driver and that, in essence, creates static between the Federal and State obligations.

Perhaps the key objective behind NHTSA's recommendation was to provide federal leadership to avoid a patchwork of State rules. Yet, the early evidence is it still might be necessary to further strengthen the federal leadership. Some even have suggested that a state-level time out might be warranted.

A second key objective was to reduce federal regulatory rigidity and ambiguity. Some of the rigidity has been addressed with commitments to timely respond to requests for interpretations and exemptions but too much ambiguity remains. Policy often seems simple but when it gets to execution and compliance, that simplicity morphs into numbing complexity and complexity equals delay, higher costs and delayed social benefits.

Finally, another key objective was provide mechanisms to better share data and learning to class both OEMs and tech providers. It is a prudent goal. We are not certain, however, that all contemplated obligations are feasible and productive.

Summing up, we appreciate this committee's initiative to help accelerate the smart introduction of these lifesaving carbon-reducing, economy-enhancing technologies. This is

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guidance, voluntary for now at the federal level and mandatory, effectively at the State level triggers this conversation. We welcome it because the stakes are high and the opportunity is enormous. Government must pave the way for technology deployment and must not, despite good intent, become an obstacle to realize in the brighter future of mobility.

I look forward to answering your questions.

[The prepared statement of Mr. Bainwol follows:]

*****INSERT 5*****

Mr. Burgess. The chair thanks the gentleman. Mr. Steudle is recognized for 5 minutes, please, for an opening statement.

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STATEMENT OF KIRK STEUDLE

Mr. Steudle. Thank you, Mr. Chairman and members of the committee. It is an opportunity to sit in front of you. I appreciate that opportunity to talk about something that is truly revolutionary in the transportation industry, that is, connected and autonomous and automated vehicles.

At the Michigan Department of Transportation, safety is paramount. It defines everything the department does, from road and bridge design, to managing worksites, to overseeing the work of contractors. Some 35,000 people have died on America's roads, as many of you have noted. In Michigan, that number was 963 last year. Today, it is 921. That is highest in the last couple of years. That is the equivalent of 350 airline crashes with a 100 passengers. Imagine what the outcry would be if that was happening.

As has been said, 90 percent of the traffic deaths could be reduced with this technology and I think for that alone is the reason we should be pursuing this at a very advanced pace.

The exponential advent of technology shows no sign of slowing down. The technology both enables and demands multitasking. Despite the ever-evolving laws and prolific safety messages, distracted driving continues to cause more crashes and more injuries and deaths as a result of those crashes. Automakers have

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made tremendous strides in building safer vehicles, seatbelts, air bags, antilock brakes, lane control systems, adaptive cruise control, advanced braking systems, and the like.

But even while the technology and research continues to save lives, the discovery of new distractions offset the gain. Today, more than 68 percent of U.S. adults have a smart phone. That is up from 35 percent just 5 years ago and the use of electronic devices is just one of the categories in a growing list of driver distractions.

But I am not here to preach about driving distractions. If we refuse to accept the increasing number of our friends and loved ones that needlessly die in automobile accidents, we need to look for a solution and the solution is automated vehicles, a vehicle that removes the driver and the driver error.

While safety is the overriding imperative, there are other vital benefits to automated or driverless cars. Chief among them are the extension of the freedom that comes with personal mobility and personal mobility in our golden years. If any of you have had the misopportunity or the unfortunate opportunity of being in a position to take the keys away from your parent or an elderly resident, you know how painful that can be. My State has one of the oldest populations in the country. According to the 2010 census, 14 percent of the residents were over the age of 65. Driverless cars offer us the opportunity to grant all this

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precious autonomy to our full range of residents, not just those between the ages of 16 and 80 or 85 or 90.

They also have the ability to fundamentally change the way that people and goods move. Ride sharing is already having an impact on urban life, as more people choose that option, freeing up their time and their disposable income. This presents many questions about the future land use, parking, consumption of fossil fuels, the evolution of public transit and many others.

I should emphasize some key things going on back in the State of Michigan. With overwhelming bipartisan support, the legislature last week adopted and sent to Governor Snyder a package of bills that will keep Michigan at the forefront of these developments. Chiefly, the bills do these things: they allow for complete autonomous operations on any road at any time, without a special license; they allow for truck platooning; they allow for on-demand automated networks, which are driverless Ubers, driverless Lyfts; and it creates a council on future mobility made up of industry participants from a broad range.

As for NHTSA, I think the agency has done a good job of identifying and distinguishing between the State and the Federal regulatory roles related to automated vehicles. States would regulate the driver or the operator. Those regulators currently vary by state, much like graduated drivers' licenses and the effects of penalties for impaired drivers. The Federal

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government has a long history of vehicle regulations for the OEMs, the original equipment manufacturers, and that should continue. But Michigan strongly disagrees with the proposed third-party certification process that would create a middle man, which would slow progress and the adoption of lifesaving innovations. It also would introduce a third party into the liability equations.

This technology is best tested and validated by those that have developed it and understand the technology. They should be responsible for what they include in the vehicles and not get rid of that responsibility by hiding behind a third-party tester.

Thank you for the opportunity to testify on this important topic. I applaud you for taking up this and I look forward to your questions.

[The prepared statement of Mr. Steudle follows:]

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Mr. Burgess. The chair thanks the gentleman. Ms. MacCleery, you are recognized for 5 minutes for an opening statement, please.

STATEMENT OF LAURA MacCLEERY

Ms. MacCleery. Thank you. Good morning, Chairman Burgess, Ranking Member Schakowsky, and members of the subcommittee.

My name is Laura MacCleery and I work for Consumer Reports, an independent nonprofit that works side-by-side with consumers to create a fairer, safer, and healthier world.

I want to start by thanking Ranking Member Schakowsky in honoring the late Clarence Ditlow. As both a former board member of Consumer Reports and leader of the Center for Auto Safety, my friend and colleague, Clarence, made immeasurable contributions to vehicle safety and was responsible for countless lifesaving recalls. His dogged persistence was legendary. His accomplishments spanned decades.

At Consumer Reports, we consider it a privilege to carry forward his and our shared dedication to safer cars.

As we have heard, traffic deaths on U.S. roads are increasing, reversing a long-standing decline. We urgently must find ways to both prevent and reduce traffic deaths and injuries. It is critical to note at the outset that improvements to crashworthiness that would allow people to better survive crashes remain far from exhausted. For example, although the Research Safety Vehicle designed by NHTSA in the last 1970s was crash-safe at 50 miles per hour, today the minimum safety standard for frontal

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impact is only 30 miles per hour with 35 miles per hour testing in the new car assessment program. This occupant protection standard is one of several NHTSA performance standards that are badly out of date and should be upgraded.

If we know anything, it is that technology is imperfect. Making vehicles safer when they do crash should go hand-in-hand with making them smarter.

We certainly recognize the potential for crash avoidance technologies to also reduce traffic deaths. Consumer Reports Auto Testing Team has driven thousands of miles in cars that can steer within a lane and adjust speed automatically using increasingly prevalent technologies like automatic emergency braking and lane-keeping assist. We also have seen that these technologies are not perfect and vary in quality among manufacturers and that some raise novel risks. What we hear again and again in this context about safety gains is we are saying clearly that the safety benefit of fully self-driving vehicles are simply, at this point, not known.

There are real limits to current technologies. There is a handoff problem in communications with consumers and letting them know when they need to take over vehicle functioning. There is issues with user interface and with software updates that may or may not be clear to consumers who are using their vehicles. And there are profound and fully knotty ethical implications of

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algorithms.

A reality check is provided by our testing, which shows performance issues with current technologies in sunny, rainy, snowy, or icy conditions. That is a lot of weather to challenge these systems.

As this suggests, there is much work that needs to be done before cars drive themselves. Automated driving technologies cannot and should not be oversold, particularly when consumers still must be prepared to take over the controls. Failing to appropriately communicate the limits or design systems with appropriate checks on foreseeable use and misuse of systems can give consumers a false sense of security and even cost lives. As more vehicles with automated driving technologies hit the market, we will carefully evaluate them and report to consumers on their safety. For its part, NHTSA should ensure that companies put consumers first by collecting and publishing data and what has collected sufficient evidence by setting robust safety standards.

The agency has indicated the Federal Automated Vehicles Policy guidance is an initial regulatory framework. It covers a wide range of subjects but we think it is light on specific choices that companies should make to assure safety. We urge lawmakers to take three key steps. First, to recognize that NHTSA remains chronically under-resourced. To improve and ensure consumer trust in automated vehicles, the agency must receive its

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requested funding so it can independently and thoroughly assess the safety of these systems.

Members should also recognize a few fundamental steps needed to assure effective oversight of automated driving. Here are three: We call on companies first to give their safety data to NHTSA and the public. Dr. Rosekind indicated that the data would show what is best. That makes sense but right now, the safety benefits of autonomous driving are speculative and based on data held entirely by the companies. Regulators and consumers both deserve to know the basis the companies use to determine that an automated technology is safe, particularly if they are making claims that this technology performs more safely than human drivers.

Second, NHTSA's enforcement capability should be strengthened. NHTSA has the authority to deem automated system risks to be safety-related defects but its practical ability to get unsafe cars off the road quickly has long been limited and is challenged in a world of instant software updates. Congress should give the agency imminent hazard authority so that it can take immediate action.

Third, NHTSA and other relevant agencies must take a hard look at the risks of a lack of cybersecurity in vehicles. The recent Dyn attack raises the question of what must be done to safeguard consumers and this issue can't wait.

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NHTSA has repeatedly requested imminent hazard authority, I will note, and it is part of Ranking Member Schakowsky's Vehicle Safety Improvement Act, which we support.

In conclusion, automated innovation is essential. It has included features with major benefits to consumer safety, such as automatic emergency braking. But our ambitions in this area must be balanced with accountability and a full view of how humans interact with this technology. Building public trust is critical. Public data, vigorous agency oversight, and attention to a total-vehicle and consumer-first approach will be needed to ensure that safety keeps pace with technological change.

[The prepared statement of Ms. MacCleery follows:]

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Mr. Burgess. The chair thanks the gentlelady. Ms. Wilson, you are recognized for 5 minutes, please, for an opening statement.

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STATEMENT OF ANN WILSON

Ms. Wilson. Chairman Burgess, Ranking Member Schakowsky, members of the subcommittee, my name is Ann Wilson and I serve as the Senior Vice President of Government Affairs for the Motor and Equipment Manufacturers Association or MEMA.

Thank you for the invitation to testify before you today on automated vehicles and NHTSA's Automated Vehicle Policy.

MEMA is the leading international trade association of the fast-changing mobility industry. By directly employing more than 800,000 Americans and generating a total employment impact of 4.2 million jobs, MEMA member companies are the largest employer of manufacturing jobs in the U.S.

MEMA applauds NHTSA for developing the Federal Automated Vehicle Policy. Given the rapidly evolving advances in vehicle technologies, we believe this policy, as opposed to regulations, that clarifies a national framework with a clear role for the states sets pathways for all stakeholders to navigate the complexities of automated vehicle technologies.

We are currently working with our members to provide NHTSA with specific comments by November 22nd and we will provide those comments to the subcommittee.

We are also committed to a continuous dialogue with NHTSA on the AV policy. However, we urge NHTSA to clarify the policy

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in the near-term with the input received from the public listening sessions and the written comments.

Today, I wanted to lay out a few challenges and opportunities MEMA has already identified. First, MEMA would strongly urge the agency to treat test vehicles covered by the AV policy separately from production vehicles. Typically, these vehicles are company-owned and operated only by trained employees and are not intended for production and sale to the general public. For instance, it is not clear in the policy whether NHTSA intends component manufacturers or other entities should apply for exemptions for test vehicles in order to test and evaluate Level 2 through 5 systems on public roads.

With the rapid evolution of these technologies, time is critical. The process outlined in the AV policy for test vehicles, including the exemption process, would delay innovation.

We also have some serious concerns about the protection of manufacturers' intellectual property rights during the testing phase.

We are also seeking an additional clarification with respect to test vehicles. Under Section 24404 of the recently enacted FAST Act, OEMs can test and operate vehicles that do not meet Federal Motor Vehicle Safety Standards, provided they are not offered for sale. But this provision does not include component

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manufacturers and we would urge the committee to clarify this provision at the first opportunity.

Second, in 2015, MEMA and the Boston Consulting Group released a report examining the safety benefits of Advanced Driver Assistance Systems or ADAS technologies. The study found that these technologies can provide immediate safety benefits and formed a pathway, as you have heard, to a partially and fully automated vehicle fleet that could virtually eliminate traffic fatalities. But it is important to note that some of these ADAS technologies constitute the SAE Level 2 automated systems. These include technologies, as you have heard today, like AEB, adaptive cruise control, and others. Technology is currently available on a wide range of vehicles. MEMA urges NHTSA to further delineate the impact that the AV Policy has on Level 2 technologies.

Third, as previously recognized, NHTSA's AV Policy also applies to all vehicles. While much of the testimony you have heard today is directed towards the automotive industry, many of the opportunities and challenges apply to both passenger and commercial vehicles. The commercial vehicle component supplier members of MEMA are particularly concerned about the IP protection as safety systems and other new technologies are key differentiators for trucking fleets. There are many other parties in the commercial market who must be engaged in the

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development and implementation of AV Policy for all the challenges and benefits to be fully explored. We encourage NHTSA to continue interacting with those parties and we would encourage this committee to work with them, too.

Fourth, original equipment component suppliers do not always have complete visibility into the full scope of issues to properly assess performance. Once a component or a system has been integrated into a protection vehicle, it is important that all stakeholders have a clear understanding of NHTSA's expectations of the roles and responsibilities, particularly for OEMs and component manufacturers. These distinctions should be clarified and articulated in the context of the policy.

And finally, MEMA encourages NHTSA to take the lead with their global counterparts to cooperate in developing an AV policy beyond the U.S. for the benefit of the global community. The earlier we get ahead of opportunities to align, the better it will be for all stakeholders, government, industry, and the driving public.

In conclusion, the members of MEMA are committed to vehicle safety and are at the forefront of developing additional lifesaving technologies.

We appreciate this opportunity to testify and I would be happy to answer your questions.

[The prepared statement of Ms. Wilson follows:]

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*****INSERT 8*****

Mr. Burgess. The chair thanks the gentlelady.

Mr. Shapiro, you are recognized for 5 minutes for an opening statement, please.

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STATEMENT OF GARY SHAPIRO

Mr. Shapiro. I am Gary Shapiro, President and CEO of the Consumer Technology Association. I just want to thank you, Mr. Chairman Burgess and Ranking Member Schakowsky, and members of the subcommittee as well for inviting me to testify on this important issue.

I also want to thank you for hosting these Disrupter Series. This is really important. You have brought attention to new technologies like 3-D printing and drones, which are fundamentally changing the world. Actually, at CTA we created a Disruptive Innovation Council last year and it supports those companies that are developing technologies and services that are disrupting traditional business models, actually creating new markets, and, frankly, delighting consumers. So, this is a good thing. That is what this country was based on is positive disruption.

And that is what we are talking about here. We actually represent over 2,200 American consumer technology companies. We own and produce the CES. It is the world's largest business, coolest, funnest event. You are all invited to attend. If you come to Las Vegas next January you will see literally 3,900 companies, including 300 of them that are focused on connected vehicles, driverless cars. Most of the major auto companies are

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there as well. And you will see the future right there in one place.

We also, as an association, represent much of the vehicle technology ecosystem. Our member companies are fundamentally revolutionizing the transportation network and are well on their way to making self-driving vehicles a reality.

This comes about because the internet, wireless, and sensing technology are poised to revolutionize the auto sector, as they have other industry sectors. While these changes disrupt all business models, they lead to economic growth, a better standard of living, improved health and safety, and new opportunities to expand entrepreneurship, provide American leadership and solve real-world major problems.

You have heard over and over today about self-driving cars that will save over 30,000 lives a year and prevent hundreds of thousands of injuries. They will also free up our time, enhance the travel business so more Americans will use cars to travel further and see America and actually change our view of cars so they will be a service, rather than a product.

So, I think what we should do is set a goal of cutting American road fatalities by a certain date and challenge interested groups to gather and forge a path forward to solve the many legal, legislative and standardization uncertainties to achieve that outcome.

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One question that has already come up today and people are asking is whether this technology must be perfect before it deployed. Perfection may be an unreachable goal but any significant improvement over the status quo of 35,000 annual deaths should be welcome. In fact, though, as you have heard, driver assist technology is already saving lives, avoiding accidents, and paving the way for driverless innovations. We welcome and need technologies that help drowsy or inattentive drivers stay focused or provide specific responses, such as automatic braking and lane drift avoidance, all of which are available in newer models today.

Further, the aftermarket industry does provide a valuable service in allowing consumers to add lifesaving technology to vehicles they already own and that is important because if we wait for the whole fleet to turn over, we are waiting 20 or 30 years to save those thousands of lives of each year.

Our research we have done with consumers confirms there is strong interest in the early stages of self-driving technology. We did a recent study with 2,000 consumers and three in four are excited about the benefits of self-driving cars. More than 60 percent are interested in replacing the car or truck they own with a completely self-driving vehicle.

Of course, you have heard, transportation is a national system. We need uniformity to ensure a national single market,

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promote safety, and provide consistency.

CTA was encouraged by NHTSA's Federal Automated Vehicles Policy and its recognition of the need for self-driving vehicles. More, NHTSA recognized the importance of flexibility for the industry to continue to innovate with appropriate supervision at the State and Federal level. We appreciate the leadership, however, we do have several concerns with the policy, which we will be filing formal comments on.

While DOT is a primary regulator for self-driving vehicles, other agencies also have a role. Representatives from the NTIA, the FCC, FDC, DoD, and others have asked how they can provide input for their needs, contribute their expertise on spectrum, interoperability, cybersecurity, and privacy, and simply stay informed.

And I applaud the DOT for taking a leadership role and seeking broad input but consensus, national consensus on self-driving vehicles is so important that we need all the believers and the stakeholders together working towards a national goal of saving lives and resolving impediments to get there. This action requires government facilitation and leadership at the very top. We did this, and I was personally involved with our shift to high-definition television, and also did it as we created commercial rules for the internet. The U.S. led the world in both those endeavors because we had industry together, all the

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interested parties working with government. The result for both has been huge boots in U.S. leadership in content creation and commercial internet ventures.

Self-driving vehicles would be our gift to future generations. They will result in fewer deaths and injuries, a cleaner environment, more freedom and greater mobility. If industry and government work together on a shared national goal, we can remove every impediment and stop the carnage on American roads.

[The statement of Mr. Shapiro follows:]

*****INSERT 9*****

Mr. Burgess. The chair thanks the gentleman. And I thank all of our witnesses for their testimony today.

We will move into the question portion of the hearing and I actually would like to go to the gentleman from Kentucky first for his questions.

Mr. Guthrie. Thank you, Mr. Chairman. I appreciate you yielding.

First, Mr. Bainwol, how soon can we expect self-driving cars on the road and what are the main obstacles facing the automakers to get self-driving cars on the road faster?

Mr. Bainwol. So, that is the big question. I have hear Dr. Rosekind respond and he ducked it pretty well and I will try not to.

So, most of our members have talked about self-driving cars being on the road in the 2020, 2021 time frame but that is not going to be anytime anyplace. That is going to be either geofenced or a certain set of conditions.

So, it is around the corner. But as I indicated in my prepared testimony, the deployment is going to take two generations. Moody's says 2055 before it is ubiquitous, 2045, 30 years from now, before it is the majority of the fleet. And the fleet mix issue is absolutely huge.

Mr. Guthrie. Okay, thank you.

And Ms. Wilson, what is the difference between the driver

assisted systems and active safety features that we are seeing on the market today in self-driving cars? And how are those systems preparing consumers for the future of fully automated cars?

Ms. Wilson. So, the driver assisted systems that you see right now can take over a function. For instance, AEB will take over a function but doesn't take over control of the vehicle. So, as you look what the SAE and what is set as the stages of automation, this is, I won't say the first stage, but it is the first stages of automation.

And I think what you are seeing when they discuss this both at NHTSA and SAE is they know that this is going to be a gradual piece. I mean as Gary was mentioning, Mr. Shapiro was mentioning about the aftermarket, the aftermarket can provide valuable warning devices to a consumer. So, if you have a car that is a little older, it can warn you, maybe not take over control of the vehicle, but warn you of a safety hazards and things like that.

So, again, those levels of automation are very important and we will see this gradually increase over years.

Mr. Guthrie. Thanks. I was just visiting my daughter in Chicago and I have a little older car. And I had to, which we don't do in Kentucky too often, parallel park. And you are not in practice and then I was with a friend of mine who has a substantially nicer, more expensive car than I have that actually

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could guide him right in, parallel park. It got him right in. So, it was interesting.

Ms. Wilson. We have some members who would love to show you that technology.

Mr. Guthrie. Well, I learned that I need it because we don't do that. I don't do that actually hardly ever back home.

So, Mr. Shapiro, what kind of disruption do you think self-driving cars will have on jobs? I know that you have talked about it is going to increase economic opportunity but just anytime there is -- I guess you could say the tractor cost jobs. That is what the Grapes of Wrath is really about. But it also created productivity but it did displace people.

So, how should we be preparing for that disruption?

Mr. Shapiro. It is a great question. I think it will have an equivalent of what the car did to those who rode horses, basically. It will be big because you are not only talking about professional drivers, you are talking about also collision repair people, aftermarket parts people, collision repair shops, insurance -- the insurance industry will dramatically be affected. But what consumers will get in return, obviously, is lower insurance prices and they will have fewer fatalities. The hospital rooms, there will be less people in emergency rooms. It will affect emergency room doctors. And it will be very disruptive. There is no question about that. And that is a very

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critical issue and I think we have to start talking about it.

So, what happens in any segment of society? What happened to telephone operators? What happened to travel agents? What happened to all these things as we go to new jobs? And that is what this election may have been about. And I think we have an obligation, those in business and those in government to figure it out. And part of figuring it out is what are the jobs for the next century.

Now, we advocate, look, already today there is about 60,000 or 70,000 truck driver jobs that are open. They are not even being filled. So, we need truck drivers but that will shift over time. We have an aging population. We need people to take care of them. We don't have enough people.

We need programmers. We need STEM graduates. We need people that have technical skills. We need in this country to get people to get community college training and raise that so that not everyone has to go to a college.

I could spend a lot of time talking about the future of jobs and we will be talking about it next year in 2017 at CTA because it is important and I think we have to focus on it as a country and as a society.

Mr. Guthrie. My family is in the automotive supply business. So, we deal with some of the companies that are trying to develop the technology. And I didn't have a chance to go to

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the demonstration earlier but they say, the engineers are talking about the biggest problem is that if everybody follows the rules, this works but if you get into those situations where it is traffic and you have got to like force yourself into, merge. Like you know you waive to somebody and they back up and they let you in, he said those are the things that they haven't -- it really is driver using like the way -- you know how we all do that. Yes, can you come on in. And they said that is where they are really struggling to try to figure out how to get around those kind of situations.

Mr. Shapiro. That is an addressable situation, increasingly addressable, especially with aftermarket products. It is a matter of what algorithms you create and how your car responds to other people who may not be following the rules. It is a solvable problem but it takes everyone getting together to talk about how to solve it.

Mr. Burgess. The gentleman yields back. The chair thanks the gentleman. The chair recognizes the gentlelady from Illinois, Ms. Schakowsky, 5 minutes for your questions, please.

Ms. Schakowsky. Thank you, Mr. Chairman.

Ms. MacCleery, I was interested in your testimony. You said that in the late '70s crash safety was considered at 50 miles an hour and today the minimum safety standard for frontal impact you said is 30 miles an hour with a 35 mile an hour test for new car

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assessment program. How did that happen and why?

Ms. MacCleery. Yes, there was a challenge made to the engineering community by the National Highway Traffic Safety Administration under President Carter. And he went out and he said basically let the engineers solve this problem. So, they designed the research safety vehicle and it had a number of really interesting innovations, including a kind of plastic Styrofoam that was inside the vehicle's structure so that it would be very crash absorbing and it made the vehicle crash safe at 50 miles an hour.

And really, that is a high water mark that has not --

Ms. Schakowsky. Well, how did it get reduced? Why would it get reduced as the standard?

Ms. MacCleery. Well, it wasn't the standard. It was a test vehicle --

Ms. Schakowsky. Right.

Ms. MacCleery. -- a prototype --

Ms. Schakowsky. Right.

Ms. MacCleery. -- that demonstrated what would be possible from a vehicle design and engineering perspective.

Ms. Schakowsky. And did that ever get implemented in the actual manufacturing?

Ms. MacCleery. No.

Ms. Schakowsky. No. Oh, okay.

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Ms. MacCleery. The vehicles were mostly destroyed under the Reagan administration. There were two that were recently discovered and were brought to NHTSA for study.

Ms. Schakowsky. Let me ask this, then. Does a 30 or 35 mile an hour standard make sense today that that is what we test for? Should we be looking at something more significant?

Ms. MacCleery. Yes, there are a lot of complexities to raising occupant safety standards, including dealing with smaller statured individuals and how aggressive air bags would be. So, you have to factor in the whole vehicle approach. But if you can build it into, the crash worthiness into the vehicle structure, the way that air bags do, it helps all occupants. And that is what the design of the research safety vehicle demonstrated was possible.

Ms. Schakowsky. Now, clearly, we are talking about these new technologies and the cars driving themselves but you also mentioned that consumers would be far more likely to entrust their lives to crash safety, crash safe vehicles and these improvements should be viewed as a necessary corollary to automated crash avoidance systems. Are we doing enough in that regard or has our focus shifted to the automobiles themselves being able to take care of it? Should we be continuing to emphasize and are we doing that enough, the crash safety methods?

Ms. MacCleery. I don't think we are. NHTSA has a number

of standards that are badly out of date and have not come pace with where vehicles are performing today. And we should be upgrading the safety standards. As we have heard, a mixed fleet is what we are going to be dealing with for the foreseeable future.

Ms. Schakowsky. Right.

Ms. MacCleery. And so, saving lives in the interim is really a priority.

Ms. Schakowsky. Okay. You know, Mr. Shapiro, you were talking about the Consumer Electronics Show that you have every year. And I am just wondering. There is both the convergence of driver reliance on semi-autonomous features but also the increased use of smart phones, and apps, and infotainment options in cars. And I am just wondering if there is some conflict here for distraction of drivers. At the same time, we are talking about more autonomy for the cars themselves, we are also providing more distractions, especially in this transition period.

Is there a conflict there? And how do we resolve that?

Mr. Shapiro. Well, we resolve anything like that by getting to self-driving cars with more and more features towards self-drive as soon as possible because they do save lives.

I don't think you are going to be able to change the fact that -- you know why did we go up from 30,000 to 35,000 deaths last year? And we keep asking ourselves. Well, cheap gas, more miles clearly added but there are others. There are more

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distractions and it is not only using devices. It is that there is people drinking coffee. And people are tired. They fall asleep a lot. They drink a lot.

Ms. Schakowsky. Yes, but they always did that.

Mr. Shapiro. But they are still doing it and I think we are all more tired now for some reason.

Ms. Schakowsky. Yes, well.

Mr. Shapiro. But the point is is that it is going up. It is a bad trend. And the way to get out of it is, obviously, to do public education through strong laws on distracted driving but we have got to get to driverless cars and active collision avoidance and even, obviously, past collision.

And we are getting there quickly. I already had an experience with an active collision avoidance where I was stopped hitting the car in front of me because the car took over. I think it is great. I think every American should have that and we should have it as soon as possible and we should also try to get it through the aftermarket. We can't wait 30 years. That is about a million lives we will lose.

Ms. Schakowsky. Okay, I am just wondering, if I could, Mr. Chairman, ask Ms. MacCleery to comment on that.

Ms. MacCleery. Well, we see an enormous variance among the effectiveness and consumer-facing features of various current performance technology. Some of them don't work under certain

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weather conditions. Others of them may not be to the consumer's liking in terms of how they are doing alerts.

For example, in the Lane Assist technologies, we have done testing where you are trying to swerve to avoid a bicyclist or a pedestrian and the vehicle tries to correct that by pulling the steering wheel back out of your hand and keeping with the lane. That could, actually, cause a collision and it is unnerving from a driver's perspective to be steering into the object that you are trying to avoid.

And so these technologies are in development. And some are better than others. They are not uniform. And that is why we think having the data sharing piece is so important because once the public and regulators can get access to the data about which systems work better than others, then you can see how to set the direction for the future of these technologies and which ones are really proving beneficial.

Ms. Schakowsky. Thank you.

If I could just ask Mr. Shapiro while all these technologies are developing, I hope you will develop one for hot cars notification of people who may leave a child in the back seat. We have all these bells and whistles now in our cars. Children die because they are left in those cars. There has got to be --

Mr. Shapiro. There is something and I will follow-up with you and tell you what it is.

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Ms. Schakowsky. Thank you.

Mr. Shapiro. And I might add to that example, I keep thinking of the fact that every one of us in this room has probably seen somebody and we have swerved away into a lane we didn't even know someone was there. And the technology that we are going to will avoid that risk we are taking, all of us are taking in one on.

Ms. Schakowsky. Thanks all of you.

Mr. Burgess. The chair thanks the gentlelady. The chair recognizes the gentleman from Oklahoma, Mr. Mullin, for 5 minutes for questions, please.

Mr. Mullin. Thank you, Mr. Chairman. Thank you to the panel for being here.

Ms. MacCleery, I couldn't agree more that it does unnerve you a little bit when you are switching lanes, when you are in traffic and you have got to get over and you have to steer into it, which is why I absolutely cannot stand it on my wife's vehicle. But I get the need, too. Look, it is about safety, to Mister -- is it Shapiro? I am so sorry. I get the safety part of it but I am from a very rural part of the country. In fact, just to get to my house, you have got to go four miles down a country road and that is off of a two-lane road that is the nearest four-lane highway is I don't know. I mean it is a long ways away. And we pull a lot of trailers. I mean there are trailers behind a truck.

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If you are with me on a weekend, I have probably got a trailer behind me.

How does this technology affect that? I mean there are so many variances that go into place. I heard you talking about truck drivers. The way the trailer is handled behind a vehicle, the weight, it would depend on how they are loaded. It would depend on the bumper pull of if it has got a gooseneck on it. It would depend on if you are running cattle or if it is an RV. I mean it all changes and it all changes to feel the vehicle.

How does an automated vehicle correct that and change that, not to mention you are going down dirt roads and country roads?

Mr. Shapiro. Those are great points and those are the kinds of things which will be plugged into equations so the car will know what it is pulling. It will know its weights. It will know the reaction. It will know what kind of road it is on. It will know if you have been drinking or not, too, which is the point.

Mr. Mullin. Drinking what?

Mr. Shapiro. Well, the important part is that we have so many accidents today and so many people, there is drunk driving this obviously will have a big impact on and there is disabled Americans and older Americans that are waiting for this to happen.

Mr. Mullin. No, I agree. Look, in my district, 12 percent of my population is over 70. To go get groceries, it is typically a 30-minute drive because it is 15 there and 15 back. That is

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on average. That is in my district, average.

Mr. Shapiro. Well, we can also talk about drones to get some service to those people as well.

Mr. Mullin. They would be shot down if they flew around our place.

Mr. Shapiro. I am not winning with you, am I?

Mr. Mullin. No.

Mr. Shapiro. But the bottom line is is we will resolve these problems. And the way to resolve the problems is to identify them and discuss them and come to a consensus.

And what we have now with computer technology and machine learning technology, it will learn as it goes along. There will be deep learning of the situation but it won't be perfect but it will be great.

Mr. Mullin. But the more of it comes -- and I get that. I am not against technology. Look, our company, we are always investing in technology. It is great. It is wonderful but it can become a distraction. You cannot offset -- you can't depend on a computer to understand when a horse falls in your trailer. You can't. You can't feel that. You are talking about the safety of the animal, at that point. And if you are not paying attention to it, it goes away.

And I understand technology but I am not so sure that it is going to be a fix-all. In major metropolitan areas, okay, I get

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that. But if you put a mandate out there on it, you are going to take away the freedoms. You are going to take away the ability for the driver. You are going to take away the feel of the vehicle.

I mean my kids, my oldest one is 12 years old and we are literally already teaching him how to drive on a farm because at Oklahoma, at 14 you can get your driver's license to drive on a farm. And you are going to be driving a trailer. You have got to feel that. You have got to know what it feels like. And you can't, you are not going to get that through vehicles. I am going to have a hard time believing that a machine is going to be safer than me when I have got everything paying attention to it.

I mean, granted if I am drinking, which I don't, but I am just saying I get that. I understand that. But I am not so sure this is going to be perfect and I don't want to rush and put it out there. I think there is going to be areas to where it would be great.

Mr. Shapiro. Well, you did use the word mandate and that is not a word I have used. I would imagine in a many of the vehicle manufacturers, especially those aimed at the rural area would have a switch that would allow you to turn it on and turn it off, or give you a warning if you are about to hit a tree, and maybe only take over if you are hitting a tree or a deer, or something like that.

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Mr. Mullin. That is what a brush guard is all about because those things jump in front of you.

Mr. Shapiro. We are evolving on this. Pardon me?

Mr. Mullin. I can't predict when a deer jumps in front me. That is what a big brush guard is for. You just hit them and go one, I guess. I don't know.

Mr. Shapiro. Well, maybe the car can. Maybe the car can. And that is the advantage of this.

So, I think we have to let it play out but set the goals. And the goals are reducing human injury and death, the 94 percent of car accidents that are caused by human error.

Mr. Mullin. No, I get that. Look, I have got five kids coming up, too. I mean my oldest one, like I said, is 12 and I know how bad of a driver I was when I was 16. And we can all say that.

And so I want to be as safe as possible. I don't want anybody to lose their child. I don't want anybody to have to go through that but I want to make sure we are cautious moving forward.

So, thank you to the panel for being here. I appreciate you.

Mr. Burgess. The gentleman yields back. The chair thanks the gentleman.

The chair would observe that we have been joined by the Ranking Member of the full committee, Mr. Pallone, and I will be happy to go to him next to him for questions, 5 minutes, please.

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Mr. Pallone. Thank you, Mr. Chairman.

Both the tech industry and the automotive industry have been working towards fully automated vehicles for years now but many consumers remain unaware of the technology and its potential to decrease fatalities, improve mobility for seniors and the disabled, and improve daily life for Americans.

So, I wanted to ask Ms. MacCleery, there has been a lot of attention paid in Congress and in the media on autonomous cars. We have heard claims that these cars will be available for purchase soon but we have also heard that fully autonomous cars are decades away. What is the realistic time line for adoption and is this something consumers should be paying attention to now or is this decades away?

Ms. MacCleery. So, we think that it is not probably decades away but it is really an unknown in terms of the exact time line when these vehicles could come on the road. And what we are most concerned about is that vehicles currently touted as self-driving are actually not there yet. And so that that is misleading to consumers who actually need to be able, and poised, and paying attention to take over the wheel at a moment's notice. We know that human beings have a hard time coming in and out of paying attention to situations. And so we think that that kind of overselling of the technology represents a particular hazard.

Mr. Pallone. All right, thanks.

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It is my understanding that because of the interest in ensuring that components of autonomous vehicles are safe from cyber intrusion, some have expressed concern about retrofitting exiting vehicles with the technology.

So, let me ask you does aftermarket autonomous technology present cybersecurity risks and are there unique safety risks associated with aftermarket autonomous technology?

And I guess I will ask the third question. Is there a path forward for aftermarket autonomous technology or will consumers eventually be required to purchase a new vehicle to get the benefits?

I will throw those all out. You can answer them together.

Ms. MacCleery. On the cybersecurity question, I think we are very concerned. What we saw with the distributed denial of service attack just a few weeks ago was that there are lots of back doors and lots of products. And obviously, the prospect of having some sort of coordinated attack that would take over the wheel from American drivers is very concerning.

We have a guidance that the National Highway Traffic Safety Administration just issued. We think that is a good first step but it really needs to be pushed forward quite aggressively so that we all have a better view of what are the vulnerabilities and how to fix them, both with current vehicles and the current technologies that are already on the road, as well as future and

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anticipated technologies in vehicles.

In terms of aftermarket solutions, I think some of the same security concerns would apply. And so you would want them to be compliant with whatever that new standard on cybersecurity is that gets established.

As to your third question, in terms of the future of autonomous vehicles and aftermarket solutions, we haven't really comprehensively evaluated these technologies at Consumer Reports. It is something that we are looking at. And so we really don't have a view yet, driver reviews based on evidence in the testing and we would need to conduct comprehensive testing of some of the aftermarket opportunities.

Mr. Pallone. I had a third question but did you want to say something quickly?

Mr. Shapiro. Yes, Administrator Rosekind testified on that very point and he said that the same risks you have with cars you would have with aftermarket as well. There is no additional risk that he is aware of.

But I would say that even if there is an additional risk, I think you have weigh that against the lives that will be saved. So, if we wait an additional 15 years so that the entire fleet turns over, as opposed to starting putting the products in in the next few years, then we have lost 15 years' worth of lives at the rate of up to 30,000 a year.

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Mr. Pallone. All right, thanks.

Ms. Wilson. I wonder if --

Mr. Pallone. Oh, I am sorry.

Ms. Wilson. I was just wondering if I could. I represent component manufacturers, including aftermarket manufacturers. Our members are working very closely with the vehicle manufacturers right now on what is called a secure vehicle interface to try to look at things like this to see how we can provide this and provide the cybersecurity. We are hoping that an industry standard can be reached.

And an SAE Committee has just recently been started and they are going to start to meet in December. So, we are very hopeful. There are a lot of challenges I think as the whole panel has indicated but the industry is really trying to work on this and get our arms around it.

Mr. Pallone. All right, thanks. Let me get in a third question here.

Semi-autonomous vehicles, which utilize technology such as automatic lane-keeping, speed adjustment, and automatic parallel parking are already making their way to market. So, the question, again, to Ms. MacCleery, there is likely to be a lag time between semi-autonomous vehicles and fully autonomous vehicles hitting the market, in addition to traditional driver-operated vehicles remaining on the road for some time. We can expect that, at some

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point, fully autonomous, semi-autonomous, and driver-operated cars will all be on public roads at the same time. So, can they exist safely on the road together and why?

Ms. MacCleery. I think that is the heart of the question. We do have issues with social signaling, the kind of thing that was discussed a few minutes ago, with regard to drivers indicating to one another when they are going to enter a new lane and that sort of thing and there is real questions about whether fully autonomous vehicles can actually participate in that kind of social exchange on the roads and what happens to the technology if it can't read those signals.

You know there is also issues with a mixed fleet of the unpredictable and of variances in the technology in terms of how well the various safety performance technologies do for consumers and how much safety benefit they provide.

We are, obviously, very keen to see innovations that enhance safety. We have been huge fans of some of those technologies, including advanced emergency braking and have tested a variety of those systems and think that they do provide a real safety benefit, alongside other systems, like electronic stability control that have already been made part of regulations.

So, we are eager for the National Highway Traffic Safety Administration to do sufficient data collection. They can actually compare the benefits of these systems and look at them

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together.

Mr. Pallone. All right, thank you all. Thank you, Mr. Chairman.

Mr. Burgess. The gentleman yields back. The chair thanks the gentleman.

I do want to point out to the gentleman from New Jersey that I did not take my time for questions and allowed the members of the subcommittee to go first. So, now I am consuming 5 minutes. I didn't want you to think that I was giving myself an additional time.

But I do want to thank all of you. This has been a fascinating discussion. Now, tomorrow, we are going to have another joint subcommittee hearing with the telecom subcommittee on this very issue of the denial of service attacks, not so much as affect the automotive industry but it does raise a rather odd specter for being a cyber carjacking and someone actually being able to take over your vehicle. I don't know if you could actually access the Bitcoins from the dashboard or not but it is an interesting problem that when you think about it for the future and the ability to have security of the cybersecurity necessary in these vehicles is going to be critical.

And I assume right down the line that you all are focused on that with both your manufacturing, aftermarket, and the consumer electronics. Is that a fair statement?

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Mr. Bainwol. Absolutely. As we have talked about before in the subcommittee, the manufacturers have established an ISAC that is up and running. We have issued best practices. And both the establishment of the ISAC and the best practices have been well-recognized by NHTSA as very positive steps forward.

Mr. Burgess. Mr. Steudle.

Mr. Steudle. Yes, actually with the State of Michigan we have opened up a cybersecurity range and we are working with the University of Michigan on that exact topic.

Ms. MacCleery. We are very concerned about this. We have been looking at the issues in terms of the vulnerabilities. There was a well-known July 2015 hack of a Jeep and Tesla and Mitsubishi vehicles have also recently been hacked. There was a news reporter who also allowed his vehicle to be hacked and lost control. And we are incredibly concerned that any vehicle connected to the internet is potentially vulnerable and that this is a sort of a late-arriving issue in terms of vehicle design that needs to be addressed forthwith.

Ms. Wilson. So, our Tier 1 original equipment suppliers, many of them are in the Auto ISAC with their vehicle manufacturer customers. And in addition, on the commercial space, we are working with NHTSA right now and the team on the Auto ISAC to come up with a commercial vehicle model, something similar like that.

And then, again, as we talked about before with the

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aftermarket, the aftermarket is trying to work on some industry solutions for some of these concerns. So, yes, sir, we are very involved in this.

Mr. Burgess. Very well. Mr. Shapiro?

Mr. Shapiro. In addition to the Auto ISAC effort and what NHTSA has done with best practices, we look at this more holistically as part of the internet of things because that is what this really is. And we have an effort ongoing internet of things to focus on and online self-assessment tools so that companies could figure out if they are using best practices and doing things correctly.

Mr. Burgess. Very good. And Mr. Shapiro, you referenced and Ms. Schakowsky had a question about addressing a child left in a hot car. And it does seem that automobiles are getting so darn smart that they ought to be able to tell if there is a life form contained within and if the internal temperature is incompatible with that life form continuing and somehow let someone know, I think that is a -- I live in a part of the country where it does extremely warm in the summertime and then these types of accidents, unfortunately, they are prominent when they do occur because it is a very prominent tragedy and if there is a way to prevent that, I would just add those children who are lost in a hot car or even a pet who is lost in a hot car as to those lives that could be saved that you alluded to at the beginning of your

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discussion.

I was talking to Dr. Rosekind before he left and I remember when my children became of driving age. That was a long time ago, but like any cheap dad, I was thinking well, we will get them a whatever kind of heap I can go find in the aftermarket or the used car market. And I think it was another physician who pointed out to me that you know the kids just starting to drive is the one who needs to the antilock brakes. You have got them on your Thunderbird but you don't really need it because you are not going to be in the same situation.

So, that is really, it is a paradigm shift for parents to think in terms of putting that lane departure warning or automatic braking, putting their first car that their child drives ought to have the protection of those things, in my opinion. And my thinking has shifted on that over the years. But those are the lives that I think could be saved.

We had a tragic accident back in my hometown. Two mothers and two daughters were in opposite cars or cars driving in opposite directions and there was a distracted driving situation, it was assumed, but all four died. And this is in a town that already has a prohibition on texting while driving.

So, I mean the law is already there. We are looking now, the city is looking at is there some way we can beef up the law. Is there some way that enforcement can be increased? But it is

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a terrible, terrible problem and I like the idea of technology being able to prevent some of those accidents. So, I am very much in favor of what you are discussing.

In your written testimony, you do have the paragraph of most concern is a proposal to grant NHTSA preapproval authority for new vehicles. That concerned me also when I read that, that it would be a major increase in authority for NHTSA by allowing NHTSA to approve every new model in every model year before it comes to market. That was a pretty startling statement that you made there but I assume that is a concern that you have from the consumer electronics area.

Mr. Shapiro. Yes. So first of all, I do want to respond to the other things you said as well.

The tragedy of the kid or the pet in the car, we should be able to solve that. I mean it is a tragedy and it is not like driving which sometimes things are unavoidable. We should be able to use technology to avoid that today. I know I have heard something about this in terms of technology that someone has proposed. I just don't know how mature or realistic it is but I will provide that to the committee.

In terms of the distracted driving, what more you could do, I was just driving in Canada recently and there were signs everywhere and it made me really think about it. I think there are some things other countries are doing we should be looking

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at as well.

But ultimately, we have to get driverless cars and collision avoidance quickly. And your point about kids being the first is a great one, something I had not considered until you said it but you are absolutely right. I guess we have to convince parents they have to give their kids new cars. That is an official policy.

Mr. Burgess. I am sure the Automotive Alliance will --

Mr. Bainwol. We like that idea.

Mr. Burgess. And then did you have a comment about the preapproval?

Mr. Shapiro. Oh, yes, I am sorry. That was really your final question.

Yes, so NHTSA has done, their attitude, their work, their everything has been fantastic. They have the right attitude of pro-innovation, pro everything. However, there is a tradeoff between established car companies and companies that want to enter the marketplace. And the car companies also, they like to change things. They like to change it up. Everyone likes to have something new. We are innovators. We like to progress. And if you have to have everything preapproved, which NHTSA was suggesting, that would really slow things down, especially in the footnote that referred to the airplane model, which takes several years for approvals. And that was pretty terrifying for those of us with this rapid turnaround, rapid changes in technology.

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And you don't want to deny consumers new benefits.

So, I don't think it is what NHTSA wants to do. I think they have done a fantastic thing it is just we want some areas clarified because of the ramifications and the barriers to entry, the barriers to innovation and new models.

Mr. Burgess. I do want to mention that Tesla, BMW, and Audi had vehicles available for subcommittee members to look at this morning out on the street. I wasn't able to -- time constraints wouldn't permit me to look at all of them but I was struck in one of the cars. I won't mention the name but the size of the screen in the middle of the console was bigger than my television at home. And we are talking about distracted driving. I mean that car has to drive itself because you are going to be watching whatever video is going, the GPS and everything else. I mean really was a startling technological development but I am sure it can be overwhelming for people who get behind the wheel, particularly a youngster who is not used to driving.

So, anyway, do you have a follow-up question, Mr. Ranking Member?

Well, thank you to our second panel. Seeing that there are no further members wishing to ask questions of this panel, I would thank all our witnesses for being here today.

Before we conclude, I would like to include the following documents to be submitted for the record by unanimous consent:

a letter from the Property Casualty Insurers Association of America, a letter from the Global Automakers.

[The information follows:]

*****COMMITTEE INSERT 10*****

Mr. Burgess. Pursuant to committee rules, I remind members they have 10 business days to submit additional questions for the record. I ask the witnesses to submit their response within 10 days upon receipt of those questions.

And we have one more letter from OTA to submit for by unanimous consent. Without objection, so ordered.

[The information follows:]

*****COMMITTEE INSERT 11*****

Mr. Burgess. We will insert it both today and tomorrow.
How is that?

Without objection, the subcommittee is adjourned. Thank
you all.

[Whereupon, at 12:47 p.m., the Subcommittee was adjourned.]

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